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WISCONSIN STATE LEGISLATURE ... PUBLIC HEARING - COMMITTEE RECORDS

2009-10

(session year)

Senate

(Assembly, Senate or Joint)

Committee on Environment...

COMMITTEE NOTICES ...

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* Contents organized for archiving by: Stefanie Rose (LRB) (September 2013)

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February 10, 2010

Senate Bill 450 Hearing
Select Committee on Clean Energy
By Senators By Representatives Black and Soletski; cosponsored by Senators
Miller and Plale, by request of Governor James E. Doyle

Topic of Comments: Energy Efficient Buildings and Equipment

Senators and Wisconsin Citizens:

Keith Spruce, here, representing myself.¹ I am a Wisconsin Architect & Building Code Official for the City of Milwaukee; Wisconsin Resident, 7th Senate District, City of Milwaukee. I am not presenting any view of the City Milwaukee; speaking in favor of SB 450--

On the topic of adopting enhanced energy conservation building codes for greater energy efficient buildings in Wisconsin under hearing today for considerations of comment and proposed modification to SB 450 legislation of clean energy and jobs act--

From both a progressive and conservative perspective we are faced with impending change in our Wisconsin economy as we enter the post-peak oil era,² a range of views found from the environmental efforts of Gaylord Nelson to the wars under George & F.W. Bush that implicate our interest to maintain mid-east oil supply³.

Robert F Kennedy Jr said, *"...people complain that environmental regulations somehow impede the free market economy. But you might as well claim that laws forbidding piracy or theft impede the free market. The whole point of environmental laws is to impose a true free-market economy by policing and punishing the cheaters."*⁴

From a conservative perspective of concern for national security and economic stability and on the reality of the issue of Peak Oil alone brings us all to the one same focus on the purpose of energy efficiency and the increased but modest

step regulations we propose under SB 450 that move us away from foreign oil dependence and prompts us all to conserve building energy usage.

Environmentalism might be seen as the main point or but a good side effect of clean energy and energy conservation; from either progressive or conservative viewpoints, central is the unavoidable demands before us of the impending need for economic energy security here in Wisconsin as we enter this post peak-oil economy.⁵

So, I am here today to encourage this committee to support a new direction in Wisconsin's energy policy under the SB 450 energy plan that takes the next modest step in energy conservation for our building industry sector that moves Wisconsin toward a future ideal of carbon-neutral or 'net-zero' buildings, buildings that both reduce fossil-fuel consumption and conserve energy more than we have done in the past.

We may now refer to energy conservation as the "fifth fuel," after coal, oil, natural gas, and uranium, and conservation is Wisconsin's most important resources, the "fifth fuel." Any businessperson knows that one of the best ways to improve profits is to reduce expenses-- Conservation is good news for Wisconsin and it's our best energy resource.

On specific provisions of SB 450--

I. Regarding that: *"Commerce must consider incorporating into the energy conservation code the design standards from the most current national energy efficiency design standards, including the International Energy Conservation Code (IECC)...." and begin a review.... whenever.... a revision is published to promulgate the energy conservation code.... is published.... submit to the legislature proposed rules.... no later than 18 months after the date after the date on which a revision.... is published, (or)....because 3 years have passed....last submitted to the legislature....the department shall....submit to the legislature no later than 9 months after....the 3-year period."* [Ref: page 5 & Section 54: p 68, lines 22-25, p 69, lines 1-9]

I. Comment-A on wording of: "code" versus proposed change to "code and adopted standard(s)": Adoption of the current code does not necessarily mean that Commerce adopt the current standard under the code. (Note: for those that do not usually work with building codes, the distinction is important between a "code" and "adopted standard(s)" under the building code.)

Regarding energy conservation code, the adopted standard in the 2006 IECC is the ASHRAE 90.1-2004; not the 2007 version currently available; and not the 2010 version, which will be available later this year. Note: SB 450 refers to the Standard as the IECC code rather than the code and the adopted standards. It is important that the language in SB 450 includes more specifics for adopting the most recent IECC code, and, to also to include the adoption of the most recent energy code standard(s) as adopted under the code as they become available.

What is important, here, is that the "standard" is also recommended to be included so that wherever the word "code" occurs as proposed in SB 450, that the word would be recommended to be changed to *the "code and adapted standard(s)"* in order to be all inclusive of what the code constitutes; such that the standard adopted under the code is also included to with adoption of the current code.

I. Comment B, on time-lines for code adoption: "Automatic" is a dangerous word to casually use in reference to Wisconsin's the SB 450 proposed adoption process. We have a long history of established Code Advisory Councils, which advises Commerce on proposed modifications to code changes to the model code called *"Wisconsinisms."* The Code Advisory Councils serve to review proposed code changes, contribute professional expertise, and in many ways, serve as a "watch dogs" for various professional construction interest groups in a process under Commerce to consider proposed modifications to code. There is nothing "automatic" about the code adoption process here in Wisconsin.

I believe the proper position we want in Wisconsin is to be concurrent or in concert with national code and standards as they develop in a timely periodic manner; and seems properly proposed in SB 450 for a reasonable lag time for Commerce to act in a reasonably timely manner on the adoption process. Time frames proposed under SB 450 for adoption do not abrogate Wisconsin's right to modify a mandated code adoption of a model code or model code adopted standard in accordance with standing administrative rules. Wisconsin maintains the right under SB 450 to adopt modifications specified to Wisconsin for a mandatory time-schedule for adoption of a model code standard by use of our *Wisconsinisms*.

Given the Recover Act of 2009 (ARRA) guidelines for code adoption, there is some lag already allowed with adoption of standards by U.S.-DOE that will provide compliance for the vast federal funding that is available to Wisconsin, on the other hand, we do not want to allow such a lag time for energy code adoption to jeopardize federal grants or stimulus funding streaming or eliminate opportunities because of lag in Wisconsin code adoption process.

Concluding therefore, it is important to have some "teeth" in a proposal to be on a concurrent 3-year code development cycle with 18 month lag with revisions and 9 month lag without revisions; and that the wording be changed to applying just to the "code" to be reworded" the "code and adopted standard."

II. Regarding that: "**Commerce may deviate from the IECC...by setting less strict standards if specific conditions exist in this state that make application of the IECC or other generally accepted code unreasonably burdensome,**" and the striking of: "**taken into account the cost of the energy code requirement....**" and striking of: "**reasonably foreseeable economic and environmental benefits to the state from any reduction in the use of imported fossil fuel.**" under Section 46. [Ref p 24 & Section 45 & 46]

II. Comment: It is important not to allow short-sighted immediate cost factors to replace the need to develop long-term changes in small incremental steps in increasing conservation requirements or adaptation to alternative fuels, or, in other words, to allow for a longer term life-cycle cost or "paid-from-savings approach" that leverages the savings generated from building system upgrades that save energy over a payback term, not to be overruled by immediate gratification regarding any enhanced initial costs that simply use "cost" and "reasonably foreseeable economic benefit" to be used to justify a less stringent code standard. Increased conservation and changes to alternative non-fossil fuels often require more "up front cost". The use of the term "unreasonably burdensome" is an appropriate and reasonable term to counteract shortsighted economic vision to intercede in the implementation of advancing to a goal of net-zero buildings by 2030 by incorporating life cycle and "paid from savings" approaches to displace upfront first cost as reasonable and not "unreasonably burdensome."

III. Regarding the provision that requires Commerce to promulgate rules establishing energy conservation standards for agricultural facilities. The bill also requires Commerce to consult with the Department of Agriculture, Trade and Consumer Protection (DATCP) before promulgating the rules. [Ref: p. 24 & Section 50, p. 65, lines 8-13 & Section 9110, p. 168 lines 19-21]

III. Comment: Commerce has never regulated agricultural buildings. Agricultural buildings have always been outside of regulation by the former Dept of Industry, Labor & Human Relations and outside of Commerce more currently. Agricultural building is currently not regulated in building codes in Wisconsin and perhaps should remain so. Wisconsin Department of Agriculture should regulate energy conservation standards for agricultural buildings. Agricultural business is a particularly important industry in Wisconsin, which has established its own

internal infrastructure and relationship to U.S. Dept of Agriculture. Thus, it would be a recommendation for this portion of SB 450 is reviewed carefully for its implications of drastic change to agricultural business regulation. It would be proposed for advice that the word "Commerce" be replaced with "Agriculture" in all references to agricultural facilities.

IV. Regarding requirements for state buildings to conform to voluntary standards for advanced energy conservation and efficiency for state buildings and compliance with commercial green building code, "that are designed to ensure that, by 2030, the overall energy use by all agencies is reduced to a level that is 30 percent lower than the overall energy use by all agencies in 2005." [Ref p 26 & Section 3-4 pp 31-32, p 31; Section 49

IV. Comment: A 30% reduction in energy efficiency goals has been promoted in the *Governor's Task Force on Global Warming, Conservation and Energy Efficiency Workgroup* and is has become a standard and goal for energy conservation nationwide.⁶

The State government should lead by example with advanced energy efficiency goals at this proposed 30% improvement level over better-than-2005-code standards for state buildings with goals for renewable energy use in the range of 10-34% improvement over the current standard ASHRAE 90.1-2007⁷ in combined conservation and alternative energy use. This is directed to a long-term goal for Wisconsin's entire building infrastructure toward carbon-neutral achievements in concert with post-peak oil, gas and coal depletions into the future to maintain a survivable economy for Wisconsin by 2030. The Governor's 25x25 goals reflects a more modest version conservative to the 2030 Challenge Plan endorsed by the American Institute of Architects and supported by ASHRAE.⁸

The adoption of the ASHRAE 189.1 Standard into our energy code for State facilities compliance may be found to be a current Standard for adoption into the State Building Code for use specific to State Facilities compliance under enhanced energy conservation, but may need further study.

V. Comment: And finally, regarding building code task force efforts to address advanced building energy codes: There is a strong pressing need to study adoption of the advanced building code being developed by the International code council called the International Green Construction Code (IgCC)⁹ further within Wisconsin to develop a consensus on a Wisconsin direction of code adoption for advanced building energy codes. Wisconsin's future rests

on this cutting-edge development of advanced energy conservation codes because such codes will be our future past Peak Oil.

It would be my humble suggestion to create a furthering building code study work group under perhaps this committees direction for specific purpose to advance consensus within Wisconsin on green building codes, to further progress the work completed by the *Governor's Task Force on Global Warming, Conservation and Energy Efficiency Workgroup*. Such a work group possibly made up of memberships from the previous task force, S&B Code Council Advisory groups specific to energy conservation and HVAC, representatives from AIA, AGC and ASHRAE along with the State DOE and Commerce, S&B Code Development Manager, and State Facilities Code Development Manager.

I courage this committee's support for SB 450, to build greener through the incremental steps that this bill encourages. Buildings account for 40 percent of carbon emissions and 70 percent of electricity generated. By increasing incentives both through code compliance and funding for green building design and renovation, Wisconsin can stimulate economic activity while securing our energy independence.

Thought the energy code compliance sections proposed under SB 450 we can provide a measure of energy code compliance to match federal funding streams for green commercial buildings, green retrofits, and affordable green housing under The 2009 Recovery Act and the State Energy Program (SEP).¹⁰

Thank you for hearing me.

Respectfully submitted by,



Keith Allen Spruce, AIA, ICC

¹ **Keith Allen Spruce is an independent Wisconsin Architect** & Wisconsin Commercial, Commercial HVAC, UDC, and UDC-HVAC Construction Inspector for the City of Milwaukee.

Member: Commerce Safety & Buildings HVAC Code Advisory Council; American Institute of Architects; Wisconsin AIA Committee on the Environment; International Code Council; and Wisconsin Building Inspector's Association.

I have 39 years of architectural experience and has operated my own sole proprietorship *Parnassus Architecture-Engineering-Interior Design* in Two Rivers since 1988; now employed by the City of Milwaukee as a commercial and residential building & HVAC inspector. Spruce remains dedicated to serve Wisconsin with specific interest and support for developing Wisconsin building codes to best serve our health, safety, and economic and ecological welfare.

² **On the reality of Peak Oil:** Wisconsin's energy plan, simply put, is in response to a known consequence of peak and permanent decline in oil production as we enter post peak-oil era where alternative technologies and conservation displace oil in sufficient quantities at comparable costs; given a known decline ever more each year following peak oil, the amount of alternative fuels and conservation would have to be replaced by alternatives year by year in a progressive step in concert with the decline.

Some 10 years ago I attended a photovoltaic conference in Madison (Effective Photovoltaic for Buildings 3/22/99-3/23/99) the small group was attended by top brass from the military and GSA. It was no surprise to them that the feds had mandated a substantial reduction in fossil fuel for federal operations and it was a bit of a revelation for me to understand peak oil issues specific to national security and the economy clearly known to the U.S. National Academy of Engineering, U.S. General Accountability Office, US. Congressional Budget Office, U.S. Army Corps of Engineers, National Petroleum Council and the major oil companies.

Peak oil does not mean 'running out of oil', it means running out of 'cheap oil.' U.S. continental oil production peaked in 1970 and globally between 2005-10. Although it passed by largely unnoticed by many, the U.S. oil peak was the most significant geopolitical event of the mid to late 20th Century, creating the conditions for the energy crises of the 1970s.

Global oil production is or has currently peaked. Because the global oil demand is rising rapidly, increasing oil prices, inflation, and economic recession will accompany declining production. Because the U.S. is highly dependent on oil and highly dependent on imported oil, the U.S. will experience severe problems regarding Peak Oil. As oil depletion progresses, more and more oil is used to produce oil. When the amount of oil used to produce a barrel of oil equals the amount of oil produced, it is pointless to continue oil production.

According to Peak Oil Associates, "*Alternatives cannot provide significant amounts of liquid fuels. Thus it is not feasible to ramp up alternatives to replace oil, even if there are decades to prepare for the occurrence of Peak Oil. There are no significant mitigation options on the supply side regarding the Peak Oil crisis. Because the global demand for oil is high, conservation in the U.S. alone will not slow global oil depletion. Any oil conserved in U.S. would be consumed by other nations. The rational policy for the nation to follow, therefore, is to shift away from consumerism and economic stimulus programs (which waste oil) and use the available oil to prepare for Peak Oil risk management planning.*" That's why net-zero or carbon neutral building are and will become the norm of the future, and gradual incremental steps to reach that goal such as those presented in SB 450, though minor, should be followed.

We have leveraged our economic growth on cheap oil. And the consequences of not having cheap oil in Wisconsin are dire when any economist does the math of adding peak oil plus increasing demand = 0. Although there is uncertainty about when Peak Oil production will occur, most independent studies conclude that oil production peaked in 2006, or that it will peak within a few years. Because the global demand for oil is increasing rapidly, a decline in oil production will generate sharp increases in the price of oil as buyers compete for decreasing oil supplies. Because oil under girds the economy, oil price increases will cause price inflation in most products and services. Due to higher prices, consumers will reduce their purchases of products and services. Unemployment and economic depression will follow. As oil production declines, the global economy will stagnate and collapse. Because the U.S. is highly dependent on imported oil, the U.S. faces severe Peak Oil impacts.

In an article published in *The Nation*, *Running on Empty*, Mark Hertsgaard, May 12, 2008 issue, the professional oil exploratory scientists were poignant to present the problem regarding peak oil-- was not the fact we have arrived at peak oil and declining supply for increased demand, but the that the biggest problem with Peak Oil was that people won't believe it. If we don't have a basis for understanding this, we will continue to argue any issues presented herewith at today's hearing until lack of basic education on the realities of Peak Oil is removed.

³ For example, disruptions in oil supply associated with the Arab oil embargo of 1973-74 and the Iranian Revolution of 1978-79 caused unprecedented increases in oil prices and was associated with worldwide recessions.

⁴ Forward by Robert F Kennedy Jr, Gaylord Nelson's *Beyond Earth Day, Fulfilling the Promise*, The University of Wisconsin Press, 2002.

Pointing out the issues before us regarding building code regulations and a free market economy further, we are on a level playing field under our adoption of national code standards. Fifty states and the District of Columbia have adopted the I-Codes at the state or jurisdictional level. Federal agencies including the Architect of the Capitol, General Services Administration, National Park Service, Department of State, U.S. Forest Service and the Veterans Administration also enforce the I-Codes. The Department of Defense references the International Building Code for constructing military facilities, including those that house U.S. troops, domestically and abroad. Puerto Rico and the U.S. Virgin Islands enforce one or more of the I-Codes

The broad-based building code initiatives by The International Code Council (ICC) The American Society of Heating, Refrigerating and Air-Conditioning Engineers (ASHRAE) are central organizations to creating or codes and standards of energy conservation we adopt into our Wisconsin building codes. We have a broad-based national consortium of unified, open and transparent code development processes which comes to us under the ICC and ASHRAE that we have and will likely continue to adopt into Wisconsin under our Administrative Rules, including the IgCC International Green Building Code (IgCC) currently being developed under the auspices of the ICC.

⁵ Buildings in the United States are responsible for 39% of CO2 emissions, 40% of energy consumption, 13% water consumption and 15% of GDP per year, making green building a source of significant economic and environmental opportunity. Greater building efficiency can meet 85% of future U.S. demand for energy, and a national commitment to green building has the potential to generate 2.5 million American jobs.

One of the most significant paths to financing energy conservation for both new and existing commercial buildings; and throughout the building lifecycle including alterations, additions, operations and maintenance, tenant build out, and significant retrofit; is a paid-from-savings approach that leverages the savings generated from building system upgrades that save energy, using energy performance contracting (EPC), an approach that pays for the building upgrades from energy cost savings generated down the line. Other standard approaches use conventional life cycle cost analysis used by Wisconsin Department of Facilities Management requirements for State building projects.

U.S. Green Building Council (USGBC) sponsored a McKinsey study that showed that investing in the energy efficiency of buildings represents a powerful and strategic energy and climate solution that, combined with other non-transportation initiatives, could:

Reduce U.S. energy consumption by 23 percent by 2020

Save the U.S. economy 1.2 trillion

Reduce greenhouse gas emissions by 1.1 gigatons annually

USGBC also contends that for the green building construction sector green building will support 7.9 million U.S. jobs and pump \$554 billion into the American economy -- including \$396 billion in wages -- over the next four years (2009-2013).

Green construction spending currently supports more than 2 million American jobs and generates more than \$100 billion in gross domestic product and wages. The economic impact of the total green construction market from 2000 to 2008, the McKinsey study found, contributed \$178 billion to U.S. gross domestic product; created or saved 2.4 million direct, indirect and induced jobs; and generated \$123 billion in wages. In many cases these jobs are skilled and semi-skilled trades jobs that can begin to replace lost manufacturing jobs.

⁶ Governor's Task Force on Global Warming, Conservation and Energy Efficiency Workgroup, Thursday, August 23, 2007-- (condensed notes)

New Construction

- Adopted LEED – NC– Sustainability Standard for major construction projects.
- Master Specifications updated to require new construction to be 30% more efficient than Commercial code.
- Building Commissioning Specifications developed with Fall 2007 implementation.
- 4 DSF project managers LEED accredited professionals

Comment by Spruce: Since the date of this Task Force's workgroup meeting, ANSI/ASHRAE/USGBC/IES ASHRAE Standard 189.1-2009 has been fully implemented for advanced energy conservation performance as of January 22, 2010. The ICC-IgCC Code, on the horizon for implementation of high performance buildings will also likely adopt the 189.1 standard into the IgCC code. Generally, the 189.1 Standard is up to 30% better-than-code energy conservation benchmark for advanced energy code compliance. The ASHRAE 189.1 Standard, along with the ASHRAE 90.1-2007 Standard, are both consistent with ARRA funding approvals under the U.S.-DOE. Wisconsin building energy code, the IECC, already adopts the ASHRAE 90.1-2004 standard under current code and 90.1-2007 scheduled for proposed adoption under the 2009 code cycle for all commercial building energy conservation requirements in Wisconsin.

Specific Description of Policy Proposal: This policy proposal consists of two distinct but complementary actions. The first would establish a policy of adopting the latest IECC code, without modification, as the state commercial energy code (chapter 63) within eighteen months of publication. Adoption of this policy would have prevented the IECC

2006 lighting control measures from being eliminated in the recently updated commercial energy code. Future versions of the IECC code will be based on the next ASHRAE 90.1 standard, which is expected to increase energy efficiency in commercial buildings by 30% (sic: future versions of the IECC code will be based on the ASHRAE 189.1 standard which is expected to increase energy efficiency in commercial buildings up to 30%). This policy is consistent with Act 141, which requires three-year review/updates and "consideration" of IECC, ASHRAE or other "generally accepted" energy efficiency codes. (sic: ASHRAE is an adopted standard, not a code.) The second policy recommendation would be to establish a voluntary high performance, green building code based on proposed standard BSR/ASHRAE/USGBC/IESNA 189P. (Note: current version is Standard 189.1, no longer in proposal form.) This draft standard, being drafted in code compliance language, includes a number of provisions and requirements to improve the energy and environmental performance of commercial buildings. The current draft standard would increase energy efficiency by 30% over ASHRAE 90.1-2007 and require 1% of electrical service load to be provided by renewable power generation. This provides a convenient mechanism to enforce Executive Order 145, which mandates that state buildings be designed to be 30% better than code in energy efficiency. ASHRAE has stated a long-term goal of net zero energy-use buildings and to have standards by 2015 for buildings that consume 70% less energy than buildings built in 2000. There are Additional environmental benefits of green buildings including reduced water usage, improved indoor environmental quality and the use of recycled/recovered materials. Other green building standards (e.g., LEED, GBI) could be used as equivalent standards for compliance. The legislative options that should be considered to encourage compliance with the high performance, green building code include:

- 1) mandatory compliance for state-owned facilities,
- 2) a fast-track permitting process for green buildings,
- 3) a 0.5% of construction cost low interest loan for private sector new construction and major retrofit projects and 4) a 0.5% of construction cost low interest loan for primary, secondary and higher education new construction and major retrofit projects.

Timetables, Duration and Stringency Option: This policy of adopting the latest IECC model code and Standard 189 within eighteen months of issuance would remain in effect until changed by law. Adoption of IECC 2006 would begin in 2008 while Standard 189 would be adopted one year after publication.

Explanation of Rough Estimate of GHG Reductions: For the enhanced commercial building code, the GHG reductions assume 12.5% average energy efficiency improvement (half of the 25% 2006 IECC improvement due to current over compliance), 90% participation, 31.6M ft² new construction and major retrofit per year for commercial buildings greater than 20K ft², 17.1 kWh/ft² and 35.5 CF/ft² energy use. For the high performance, green building code, the GHG reductions assume an additional 30% energy efficiency improvement (beyond 2006 IECC) with 25% participation.

Rough Estimate of Costs for Selected Years: The incremental cost of meeting IECC 2006 energy requirements can be considered very small due to the expected high current level of over-compliance to the current IECC 2000 based code. Recent studies (Langdon 2007) have shown that the average incremental cost of meeting a LEED-NC Silver rating is approximately one percent with a resulting annual energy operating cost reduction of 32%. The annual maximum cost of the high performance building revolving loan program is \$4.5M for a total of \$22.5M over five years. This is based on the conservative

estimate of 25% of the private sector (non-storage, non-factory) and educational projects taking advantage of the loan.

Barriers to Implementation: The primary barrier is the need for legislation to provide incentives to encourage widespread use of the high performance, green building code. There may also be opposition to the policy of automatically updating the state commercial building code to reflect the most recent IECC model energy code due to the uncertainty of future content and local impact. There is also concern about the ability to enforce the commercial building codes.

Other Factors: Some of the GHG reductions claimed by enhancement of state building codes could be duplicated in other policy proposals including appliance efficiency standards, public benefit funds, energy efficiency resource standards (EERS) and renewable portfolio standards (RPS). This policy would be implemented by the existing state organizations responsible for maintenance and enforcement of commercial building codes and administration of public benefit funds.

Review of Commercial Building Codes

Comments by Task Force Committee:

- Under item 7, we need to put something in about automatic controls, etc. We should say that we recommend adopting the latest IECC code including the lighting provisions.
- Page 3 – change ASHRAE has stated a long-term goal to something more specific about what we are trying to get to. Achieve zero-net energy buildings by 2030. We can say: our state can adopt a policy that is similar to ASHARE's etc. .
- If new code is adopted, would you continue to assume a 50% over compliance? --
No
- We'll need to have what the net savings are for modeling at each savings level for modeling.

Residential building code

Review of rental energy efficiency (existing) section:

- Data was added. Defined as one-unit, two-unit and multi-family.
- Implemented through POS. Point of lease or other major transactions may also be considered.

Review of rental single-family homes:

- Whenever single or multi-family homes are remodeled, etc – permits are necessary. That's another place where we could require energy efficiency upgrades.
- Specify what improvements we expect as much as possible. That will help us get at answering questions about cost.
- Discussion covers impacts of putting energy efficiency improvements on seller of home. Will this have unintended impacts on lower income home sellers (elderly, etc)?
- Idea: put energy and/or CO2 information in a property disclosure statement at a point of sale?
- Personal accountability very important.
- Our key objective should be improving the rental market to have a minimum standard of energy efficiency to get this huge potential of carbon reduction.

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- One suggestion is to have a Legislative Council Committee to create legislation to move this hard market forward. Largest barrier which we must continue to tackle is having clearly documented data / numbers that demonstrate the potential.
 - For existing rental buildings and single family – get good policy recommendation and demonstrate significant need. List ways (mandate tied to POS or something else, some other disclosure form requirement, etc) to accomplish the goals in that market. ID group with a variety of stakeholders to move this forward.
 - The policy section that addresses existing single-family homes is most in the need of additional data. If anyone can help, please contact Bruce.
 - Can we break out owner-occupied properties with a different approach? Perhaps a whole new template for this one. By definition, an owner occupied residence has different issues/concerns.

Residential Building Code – New Construction

Discussion items include:

- Add the next code should be 15% (or 20% -- need to decide measure) more efficient, but leave in the lighting initiatives we've named. We should add similar language to both New Multi-Family Buildings and New 1-2 Family Buildings policies.
 - It would be helpful to indicate that the 15% to 20% increase is connected to the portfolio.
 - In all policies on this topic, we should have language that indicates we will adopt the next generation of building codes in every instance as soon as possible (at the latest, 18 months after a revised code is released).
 - Items in the 1-2 Family building policy: Clarification is needed to state new standards apply to all new additions.
 - Do we need specifics on appliances & lighting? We can indicate that ENERGY STAR appliances be installed (at a minimum).
- These code suggestions will be left as labeled "high" priority.

Residential Building Code – Existing

Discussion items include:

- Is it possible to set a goal for this policy in order to get it sharpened up appropriately?
- We could propose a code process with the concentration on how much emission savings will likely be gained by a change in policy on residential rental building issues.
- Language could state that all rental buildings should get brought up to code at point of sale or at modification, and you could project what or how the code will change in the future years.
- The group discusses the possibility of a recommendation that lobbies for a study group to examine existing multi-family rental building codes – highlighting the emissions reduction potential of revised codes if drafted the right way. The group concurs this is likely a high potential area, but it could not adequately discuss *how* to implement this policy in the time we had together.
- Specifics to a study group recommendation should include a group study end date 6 or 9 months out. Specifying a group is likely specific enough, but identifying the group to take up this issue would be helpful (leg council, etc).

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- A financial assistance element should be considered in a policy for this topic that ultimately gets drafted.

⁷ **ASHRAE Standard 189.1** The U.S. Department of Energy (DOE), through the National Renewable Energy Laboratory, has made a preliminary estimate based on the second public review draft of ASHRAE Standard 189.1. Applying the minimum set of prescriptive recommendations in Standard 189.1 led to site energy savings ranging from 10 percent to 34 percent over Standard 90.1-2007, including plug and process loads and all other energy consumption for the building. The weighted average across all building types was 18 percent. (Note: the current ANSI/ASHRAE/USGBC/IES Standard 189.1-2009 was approved by ANSI on January 22, 2010.)

How is renewable energy covered within Standard 189.1?

Standard 189.1 requires that each building project be designed to be ready for renewable energy in the future. The prescriptive energy path also requires a certain amount of annual energy to be provided by on-site renewable energy systems. This requirement is a small increment but a necessary start toward the goal of net-zero-energy buildings that has been endorsed by ASHRAE and the co-sponsors.

How does the Standard 189.1 differ from building rating systems?

Standard 189.1 covers the key topic areas typically included in green building rating systems: site sustainability, water use efficiency, energy efficiency, indoor environmental quality and the building's impact on the atmosphere, materials and resources. However, the standard is written in mandatory language to allow for adoption within building codes. It is in a format consistent with other ASHRAE standards and uses the widely respected ANSI consensus procedures. The standard is not a design guide or a rating system, though it is hoped that organizations responsible for the development of voluntary building rating systems will integrate this standard into their rating programs. Green building rating systems have been developed for implementation as a voluntary system and not to be implemented as mandatory requirements within a jurisdiction. They often provide a limited number of prerequisites with many optional credits to allow focus on the green building aspects most important to the user of the system. Standard 189.1 is primarily based on mandatory requirements (with some elements allowing a choice between a prescriptive or performance options for compliance) that establish baseline criteria for a high-performance green building. Also, because Standard 189.1 is a code-intended standard, it references documents that are in normative language, meaning those documents are not just for informative purposes but are required for compliance with the standard.

How will Standard 189.1 be used and by whom?

Standard 189.1 could be implemented by a variety of users for a range of reasons, including:

- States/Municipalities
 - their own buildings
 - reach code or basis for incentives
 - private and public construction within a jurisdiction
- Organizations with green building rating systems (such as the U.S. Green Building Council and the Green Building Initiative): incorporated as the baseline (prerequisite) in a green building rating system
- Developers: individual projects
- Corporations: corporate buildings
- Universities: campus buildings

Does Standard 189.1 apply to all buildings?

Standard 189.1 covers the same group of building spaces as ANSI/ASHRAE/IES Standard 90.1, Energy Standard for Buildings except Low-Rise Residential Buildings:

- All nonresidential spaces
- All residential spaces in buildings more than three stories Within these buildings, Standard 189.1 applies to the following elements of building projects:
- New buildings and their systems
- New portions of buildings and their systems
- New systems in existing buildings

Local jurisdictions can adopt Standard 189.1 to apply to the above buildings. In lieu of adoption as the mandatory code minimum, Standard 189.1 also can be used by local jurisdictions as a tool for starting a local green building program.

What is the relationship between Standard 189.1, the Advanced Energy Design Guide (AEDG) series and Standard 90.1?

While each of these publications is related to reducing energy use of buildings, each has a different stated purpose and objective.

Standard 90.1 is published as a consensus standard to provide minimum requirements for the energy-efficient design of new and renovated buildings. The U.S. Congress and the Department of Energy require states to adopt a commercial building energy code that meets or exceeds Standard 90.1. It is written in a code intended language as minimum requirements so it does not necessarily provide exemplary or state-of-the-art design guidance. ASHRAE Standard 90.1 is on continuous maintenance and is revised on a three year cycle. The current version is 90.1-2007. As a condition of receiving money under the American Recovery and Reinvestment Act, all 50 states have certified their intent to adopt a building energy code that meets or exceeds the requirements of Standard 90.1-2007.

In contrast, the Advanced Energy Design Guide (AEDG) publications are designed to provide prescriptive recommendations for achieving at least 30 percent energy savings over the minimum requirements in Standard 90.1-1999 in eight U.S. climate zones. They show a way, but not the only way, to achieve 30 percent savings. The 1999 version of 90.1 provides the reference point to maintain a consistent baseline and scale for the AEDG 30 percent series. However, many of the energy simulation results for the AEDGs showed greater than 30 percent savings. In some climates the recommendations also exceed 90.1-2004 by 30 percent. These guides also provide a prescriptive path to achieving LEED® v2.2 and v3.0 Energy & Atmosphere credits for New Construction and Major Renovation projects. Standard 189.1 requires that each building project be designed to be ready for renewable energy in the future. The prescriptive energy path also requires a certain amount of annual energy to be provided by on-site renewable energy systems. This requirement is a small increment but a necessary start toward the goal of net-zero-energy buildings that has been endorsed by ASHRAE and the co-sponsors.

⁸ The 2030 Challenge: Credible scientists give us 10 years to be well on our way toward global greenhouse gas (GHG) emissions reductions in order to avoid catastrophic climate change. Yet there are hundreds of coal-fired power plants currently on the drawing boards in the US. Seventy-six percent (76%) of the energy produced by these plants will go to operate buildings.

Buildings are the major source of demand for energy and materials that produce by-product greenhouse gases (GHG). Slowing the growth rate of GHG emissions and then reversing it over the next ten years is the key to keeping global warming under one degree centigrade (°C) above today's level. It will require immediate action and a concerted global effort.

To accomplish this, Architecture 2030 has issued **The 2030 Challenge** asking the global architecture and building community to adopt the following targets:

- All new buildings, developments and major renovations shall be designed to meet a fossil fuel, GHG-emitting, energy consumption performance standard of 50% of the regional (or country) average for that building type.
- At a minimum, an equal amount of existing building area shall be renovated annually to meet a fossil fuel, GHG-emitting, energy consumption performance standard of 50% of the regional (or country) average for that building type.
- The fossil fuel reduction standard for all new buildings and major renovations shall be increased to:

60% in 2010

70% in 2015

80% in 2020

90% in 2025

Carbon-neutral in 2030 (using no fossil fuel GHG emitting energy to operate).

These targets may be accomplished by implementing innovative sustainable design strategies, generating on-site renewable power and/or purchasing (20% maximum) renewable energy and/or certified renewable energy credits.

⁹ The International Code Council (ICC), a membership association dedicated to building safety and fire prevention, develops the codes we have adopted here in Wisconsin used to construct commercial buildings. Most U.S. cities, counties and states choose the International Codes, building safety codes developed by the ICC. ICC is the model code agency that Wisconsin has elected to provide our commercial building code under adoption following Administrative Rules.

The IgCC is designed specifically to integrate and coordinate with the other International Codes already being enforced by governmental code officials at all levels. All 50 states and more than 20,000 U.S. jurisdictions use the International Codes developed by the Code Council for safety and sustainability. The International Codes also serve as the basis for construction of federal properties around the world, and as a reference for many nations outside the United States. The International Code Council is a non-profit membership association dedicated to building safety, fire prevention, energy efficiency, and sustainable building construction and performance.

ICC is developing a commercial green building code for traditional and high-performance buildings that is consistent and coordinated with the ICC family of Codes and Standards, which we currently adopt in Wisconsin. The IgCC is an important benchmark code development project in that when completed will be fully integrated with our current Wisconsin commercial building code suite of ICC codes: International Building Code (IBC), International Mechanical Code (IMC), International Energy Conservation Code (IECC) and International Fuel Gas Code (IFGC).

The IgCC is designed specifically to integrate and coordinate with the other International Codes already being enforced by governmental code officials at all levels. All 50 states and more than 20,000 U.S. jurisdictions use the International Codes developed by the Code Council for safety and sustainability. The International Codes also serve as the basis for construction of federal

properties around the world, and as a reference for many nations outside the United States. The International Code Council is a non-profit membership association dedicated to building safety, fire prevention, energy efficiency, and sustainable building construction and performance.

Note: The IgCC First Draft Version 4 Jan, 2010 found for review at:
<http://www.iccsafe.org/cs/sbtc/pages/firstdraftdevelopment.aspx>

Wisconsin citizens voted to change from Wisconsin's custom state code to an international model suite on July 1, 2002. The ICC codes currently consist of: International Building Code (IBC), International Mechanical Code (IMC), International Energy Conservation Code (IECC), and the International Fuel Gas Code (IFGC).

The IgCC code will provide a new regulatory framework built with leading recognized rating systems. The Code will provide criteria to drive green building into everyday practice. This decision builds on a series of actions that began in the 1970s with the creation of the *International Energy Conservation Code*. The IgCC's development is managed through the ICC's Sustainable Building Technology Committee. Standards are being developed in concert with the ASHRAE and a Memorandum of Understanding with the U.S. Green Building Council (USGBC). The USGBC manages the LEED score ratings and standards currently in use as a voluntary standard.

According to Code Council CEO Richard P. Weiland, *"It has become clear to us that to advance the goal of achieving more sustainable building performance, some regulatory framework is needed for areas where market forces are not enough. We face challenges not only with new construction, but with existing buildings and how we can increase their levels of safety and sustainability over time."*

"We have arrived at an opportune time to build on the information and resources available to us to design a useable code as a model for green building programs," said Code Council Board President Adolf Zubia. *"We plan to use the same principles that have made the Code Council family of codes so successful, which is the development of model regulatory material that is consistent, coordinated and developed in a consensus process."*

Drafters of the International Code Council's *International Green Construction Code* (IGCC) are nearing completion of the first-ever integrated green code for traditional and high performance commercial buildings, set for a public release in March 2010. *"This will be the first time code officials, owners and designers will have an integrated regulatory framework to put into practice that meets the goal of greening the construction and design of new and existing buildings,"* according to Code Council CEO Richard P. Weiland. *"Only a code that is useable, enforceable and adoptable will have the capability of impacting our built environment in dramatic ways."*

The IGCC's unique drafting approach links the International Codes to a public process bringing together diverse areas of expertise to create the first integrated, regulatory framework for green commercial buildings. The American Institute of Architects (AIA) and ASTM International are Cooperating Sponsors. Other organizations with representation on the IGCC drafting committee, known as the Sustainable Building Technology Committee (SBTC), include the U.S. Green Building Council Green Globes Initiative along with over a dozen others.

International Code Council

The Code Council's unique consensus process invites continual public input from all perspectives, culminating in a final approval from code officials to ensure the best possible rate of compliance. A critical element of the IGCC is that it is consistent and coordinated with existing International Codes that span the spectrum of the industry from building, to energy conservation, fire safety,

plumbing, mechanical fuel gas and existing buildings among others. *"Voluntary systems have led market transformation and paved the way for a regulatory framework that includes specialized standards addressing highly technical areas around installation and equipment performance,"* Weiland said. *"And with our Cooperating Sponsors at the AIA and ASTM International providing the essential perspective of the design and standards communities, there is finally an option on the table that a local, state or federal code official can actually use, enforce and adopt to impact the built environment."*

The last drafting meeting of the SBTC will be in January 2010 in Austin, Texas. The first public version of the IGCC will be published in March, which is expected to inform many policy discussions currently underway. At the same time the IGCC will undergo continual maintenance with the solicitation of additional public comments thru hearings being conducted in August, 2010t. The IGCC will then go through another round of review, comments and public hearings in 2011 for the publication for the 2012 ICC Family of Codes.

The code will address energy efficiency (including solar and other advanced technologies), water use efficiency, materials and resource use conservation, indoor environmental quality and overall building impact on the environment. It will be developed under the Council's governmental consensus process. The Code Council will seek the collaboration of key partners along with input from its members and stakeholders. This coordinated approach will ensure that code officials, design professionals and other industry experts will have a prominent and appropriate role in the development process.

IgCC will be developed to apply to traditional and high performance buildings that are consistent and coordinated with the ICC family of Codes & Standards. The IgCC shall be applicable to the construction of buildings, structures, and systems, including existing buildings subject to alterations and additions. Residential portions of buildings shall be covered by the ICC 700 National Green Building Standard (NGBS). The code will provide a new regulatory framework built with leading recognized rating systems. The Code will provide criteria to drive green building into everyday practice.

¹⁰ **State Energy Program** 3.1 billion in grants and funding provided to states for energy efficiency and renewable energy projects. States may use the funding for the creation and adoption of advanced building codes. This works in concert with DOE energy Efficiency & Renewable Energy program grants and revolving-loan programs for Wisconsin. SEP will distribute \$3.1 billion of funding to the states and U.S. territories under the 2009 Recovery Act.

Wisconsin-- \$159,603,097.00 total, \$71,662,211.00 expended and \$87,940,886.00 balance including about 13% available for other various government operations and local aid programs of which building and transportation modernization and repair includes, of which only a smaller % is allocated to building.

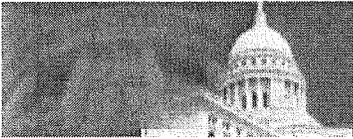
National Association of State Energy Officials (NASEO) is the only national non-profit organization whose membership includes the governor-designated energy officials from each state and territory. NASEO was formed by the states and through an agreement with the National Governors Association in 1986. The organization was created to improve the effectiveness and quality of state energy programs and policies, provide policy input and analysis, share successes among the states, and to be a repository of information on issues of particular concern to the states and their citizens. NASEO is an instrumentality of the states and derives basic funding from the states and the federal government. Members are senior officials from the State and Territory Energy

Offices, as well as affiliates from the private and public sectors. Member state agencies work on an extremely wide range of energy programs and policies, including: Energy efficiency in homes, commercial/public buildings, industry and agriculture; Renewable energy, such as solar, wind, geothermal and biomass; Residential, commercial and institutional energy building codes;

Transportation and heating fuel supplies, pricing and distribution; Oil, natural gas, electricity and other forms of energy production and distribution; Energy-environment integration (such as using conservation to reduce air emissions).

The Council of State Governments (CSG) designed to help states: 1) rapidly decipher potential funding opportunities; and 2) share best practices by tracking how the executive, legislative, and judicial branches of state government are responding to and impacted by this historic legislation.

The Clean Energy Finance Authority (CEFA) is designed to coordinate, amplify and elevate our nation's investment in a clean energy future. Renewable power has grown dramatically over the past several years. The CEFA programs included in the Recovery Plan will revive the renewable industry and double the amount of renewable energy produced over the next three years. Collectively, the funding is expected to leverage nearly \$100 billion in clean energy projects.



WISCONSIN STATE LEGISLATURE



To: Senate Special Committee on Clean Energy Jobs
From: Peter Taglia, Staff Scientist
Clean Wisconsin
Re: Clean Energy Jobs Act, AB 649/SB 450
Date: February 10, 2010

Thank you Mr. Chairman and members of the Committee for convening this hearing and considering the opportunities for clean energy and jobs in Wisconsin. Clean Wisconsin is the largest statewide environmental organization, and was founded as Wisconsin's Environmental Decade with several thousand members across the state. We focus on clean air, clean energy and clean water issues, and will celebrate our 40th anniversary in April.

The Clean Energy Jobs Act contains a very important provision that will provide cleaner fuel and long term economic growth for Wisconsin. As this committee is aware, Wisconsin has no oil resources and sends over \$16 billion out of state every year for petroleum. But Wisconsin is very well positioned to produce homegrown fuels from our strong agriculture, forestry and research sectors. A Low Carbon Fuel Standard (LCFS) is a policy that provides a flexible, market-based method to gradually transition Wisconsin towards homegrown fuels. The Clean Energy Jobs Act proposes a Midwestern LCFS that would complement approaches in adjacent state and is tailored toward the fuel infrastructure and resources in the Midwest.

An LCFS rates different types of transportation fuels by their efficiency and carbon footprint and allows fuel providers to choose what mix of fuels will be used to meet the requirement. The flexibility of an LCFS is unique among fuel policies, allowing all transportation fuels, including ethanol, biodiesel, natural gas, biogas, and electricity for electric cars, to compete with petroleum to meet the standard. By increasing the diversity of fuels in Wisconsin, an LCFS will also reduce fuel price volatility that comes from our over-dependence on petroleum. And finally, an LCFS will encourage more production of homegrown fuels made from Wisconsin's abundance of natural resources.

Wisconsin already produces nearly half a billion gallons of ethanol and biodiesel every year from facilities that are cleaner and more efficient than those in adjacent states. Wisconsin has the resources to make these biofuels even more efficient by converting them from natural gas to biomass for process energy. In addition, Wisconsin is at the forefront of the next generation of biofuels, with the University of Wisconsin system conducting approximately \$75 million dollars per year in research, including the five-year, \$125 million dollar Great Lakes Bioenergy Research Center that was recently established at the UW-Madison. This research is already beginning to pay off and

advanced biofuels companies like C5/6 technologies, Virent Energy, Best Energies and others are at the forefront of this important growth area.

Abundant resources and strong manufacturing already allow Wisconsin to lead the country in paper production and biomass energy systems, including such notable projects as DTE's recent conversion of the Stoneman coal power plant to clean biomass technology, Xcel Energy's biomass gasification conversion project at Bay Front, and We Energies biomass cogeneration project at Domtar's Wasau paper mill. These projects provide a tremendous boost to Wisconsin's economy, substituting homegrown biomass for out-of-state coal. Instead of exporting billions of dollars to coal mining regions that will boost their own economies with coal mining and related services, these biomass projects send money to the citizens of Wisconsin that provide logging residues, agricultural wastes and the services to these important sectors of the economy. The multiplier effect that occurs when we substitute homegrown fuels for imported fuels is one of the strongest job creation mechanisms available.

The same biomass resource and manufacturing strengths in Wisconsin are at the heart of the next generation of low carbon synthetic fuels. A recent economic analysis provided in testimony to the Public Service Commission by the Wisconsin Paper Council illustrates the benefit of producing ultra-low carbon renewable diesel fuel at the Flambeau River Biofuels facility: purchasing \$16 million per year of local woody biomass would result in 131 direct jobs in forestry and 28 direct jobs at the renewable fuel refinery, **plus an additional 46 indirect and induced jobs in forestry and an additional 193 indirect and induced jobs at the facility**¹. The multiplication provided by these indirect and induced jobs illustrate the benefit of producing homegrown fuels from Wisconsin instead of importing petroleum.

In addition to advanced liquid biofuels, Wisconsin also leads the country in the number of anaerobic digesters that convert agricultural and food wastes into biogas. This biogas is an effective fuel for compressed natural gas vehicles, like the Honda Civic GX made nearby in Indiana, and Wisconsin companies are building the equipment to make biogas an inexpensive, ultra-low carbon fuel. Wisconsin is also at the forefront of another non-traditional transportation fuel: Electricity. Johnson Controls, Wisconsin's largest corporation, is a leading battery provider for plug in hybrid and electric cars and was recently chosen to provide batteries for the electric version of Ford's Transit van. A recent detailed study from economists at the University of Michigan found that the Midwest is well-suited to manufacture the hybrid-electric drivetrains, advanced batteries, and renewable electricity facilities to power electric cars, bringing tens of thousands of new jobs to Wisconsin by 2015: hybrid powertrains (7,000 to 9,900 jobs); advanced batteries (340 to 1,700 jobs) and wind turbine manufacturing (5,560 to 9,100 jobs)².

¹ IMPLAN Economic Model Testimony by Terry Mace, Exhibit 303, Wisconsin PSC Docket No. 4220-CE-169

² <http://www.theclimategroup.org/publications/2010/1/28/american-innovation-manufacturing-low-carbon-technologies-in-the-midwest/>

Since an LCFS is a market standard, and not a mandate, the mix of fuels used will depend on the market availability and price of various fuels. But, importantly, a LCFS will diversify our fuel supply from our current over-dependence on petroleum. Increased fuel diversity will result in less volatility³ for consumers in Wisconsin and keep more fuel dollars in our state economy. Some of the fuel alternatives that an LCFS will help expand are not only lower in carbon and cleaner than petroleum, but are currently much cheaper. For example, compressed natural gas at recent prices is equivalent to approximately \$.86/gallon,⁴ which results in fuel savings of \$19,000 per year for the Fort Atkinson School District which recently converted all of its school buses to CNG⁵. The equipment needed to make CNG from biogas at existing methane digesters, landfills and wastewater treatment systems in WI can be paid for with fuel savings in less than 2 years providing a stable, low-priced, low carbon fuel for fleet use.

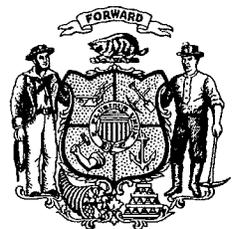
³ Zibin Zhang and Michael Wetzstein, Transition to a Bioeconomy: Risk, Infrastructure and Industry Evolution Conference, Berkeley, CA, June 24-25, <http://www.farmfoundation.org/news/articlefiles/365-Wetzstein.pdf>

⁴ At a natural gas price of \$.78104 per/therm, CNG is equivalent to approximately \$0.86 per gallon of gasoline (110,400 BTU per gallon of gasoline and 100,000 BTU per therm of CNG).

⁵ <http://www.fortschools.org/files/filesystem/SDFAOverview08-09.ppt>



WISCONSIN STATE LEGISLATURE



Written Testimony
Submitted by Mark Torresani, Engineer / Office Manager
Cornerstone Environmental Group, LLC , Madison WI
Before the Wisconsin Senate Clean Energy Jobs Act Committee
Low Carbon Fuel Standard: Opportunities for Wisconsin
February 10, 2010

Thank you, members of the Senate. I am here to describe how our industry and Wisconsin can benefit from the Low Carbon Fuel Standard and other clean energy policies in the Clean Energy Jobs Act (SB 450). The Low Carbon Fuel Standard (LCFS) is a fuel policy that will help reduce our dependence on foreign sources of oil, create Wisconsin jobs and promote energy independence by gradually moving Wisconsin toward clean, economic and efficient transportation fuel sources..

Cornerstone Environmental Group, LLC staff located in Wisconsin have become known as national experts on developing biogas energy systems. Our staff have worked on projects that utilize biogas for a wide variety industries and utilities. Currently we are working on biogas development projects in Wisconsin and in other states that range from \$250,000 to over \$30,000,000. These projects involve the use of biogas to produce heat, electricity and vehicle fuel. .

Wisconsin's role as a leader in the dairy and wood products industry makes us well suited to greatly expand the biogas industry. Wisconsin leads the US with 24 operating agriculture based manure digesters that produce electricity from biogas. In comparison Germany has over 4,600 anaerobic digesters producing electricity, biogas and a source of income for the farmers who own these systems. Existing technology also allows biogas to be used as a low carbon clean burning vehicle fuel in the form of compressed or liquefied natural gas.

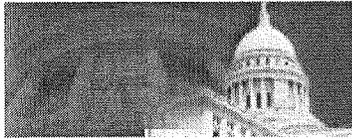
Wisconsin currently has approximately 20 Compressed Natural Gas (CNG) vehicle fueling stations and two school district bus systems that use compressed natural gas fuel. None of these systems currently include the use of biogas as a vehicle fuel. Publicly accessible CNG fueling stations are nonexistent in most areas of Wisconsin, which does not make it practical to own and operate CNG vehicles. I think it is a fair statement that most Wisconsin citizens have never heard of a natural gas powered vehicle or a biogas powered vehicle. In contrast, California and other European Countries are moving towards the use of biogas based CNG as a vehicle fuel because of its low emissions, the ability to produce biogas from waste products and the stability and cost of the fuel source. Cornerstone has been involved in two operating biogas based vehicle fueling projects, one in California and one in Ohio.

Cornerstone, Unison Solutions, LLC, Dane County, Alliant Energy, Madison Area Technical College (MATC) and ANGI International, LLC are developing a compact, economical system to convert biogas into CNG vehicle fuel from biogas sources such as manure digesters, landfills and wastewater treatment systems. This system gives farmers,

municipalities, schools and industries the ability to produce their own clean burning low carbon vehicle fuels that are competitively priced with gasoline and diesel. These systems are projected to be paid for with fuel savings in 2 to 4 years, depending on the fuel source, fuel usage and future energy prices. Biogas based vehicle fuel in the form of CNG provides a stable, low-priced, ultra-low carbon fuel for vehicle fleet use.

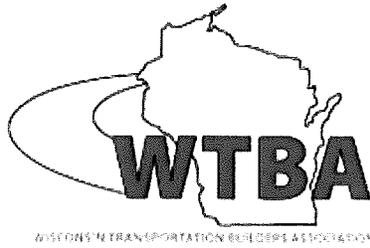
Biogas based energy, including CNG vehicle fuel is not only a lower cost and cleaner fuel for Wisconsin under a LCFS, it is a source of economic growth. Design, manufacturing and construction jobs will be created as the biogas and CNG industry grows in conjunction with other alternative fuels.

I ask that the members of the Senate look forward to where Wisconsin can and should be in the future, “a World Leader in developing biofuels technology and projects”. Being born, raised and educated in Wisconsin, I truly believe Wisconsin is and will continue to be a world leader. The production and use of cleaner burning biofuels provides another example of how we can re-tool the Wisconsin economy to create jobs of the future and protect the environment.



WISCONSIN STATE LEGISLATURE





Senate Select Committee on Clean Energy

Public Hearing on SB-450

**Tom Walker, Director of Government Affairs
Wisconsin Transportation Builders Association
February 10, 2010**

Introduction

Thank you Chairman Miller and Members of the Select Committee on Clean Energy.

The Wisconsin Transportation Builders Association (WTBA) is a statewide association of consultants, contractors and related businesses that design, build, preserve, and improve every mode of transportation, including airports, bicycle and pedestrian infrastructure, railroad improvements, and state and local highways, streets, and roads. We also look forward to working on selective urban transit capital projects in the near future.

We very much appreciate the opportunity to provide testimony on the numerous transportation-relations provisions of SB-450.

While our written comments will be lengthy, I will confine our oral comments to three areas: a realistic potential for modal shift; a focus on some of the provisions we strongly oppose; and provisions which we will support with key modifications.

The Potential for Modal Shift in Wisconsin

We want to spend a few minutes on the front end of our testimony talking about whether there is enough potential for modal shift to occur in Wisconsin, that would generate a meaningful reduction in greenhouse gas emissions. A belief that there is underlies many of the ill-conceived transportation planning proposals in this bill.

It may be helpful for the Committee to keep in mind that about 60% of transit use in America is for commuting. However, commuting comprises only a narrow 20% of trips. Most travel is highly dispersed. Transit works best in dense corridors, with ridership levels to justify service frequencies that can compete or beat auto travel. In New York City, over 30% of daily trips are made by transit. According to the U.S. DOT's Bureau of Transportation Statistics (BOTS), 1% of Wisconsin trips were made by transit.

Can Wisconsin do better? Of course! Should we? We believe the answer is clearly yes, which is why we publicly supported and advocated for the creation of a state-funded bicycle and pedestrian program, complete streets legislation, RTA's, a state transit capital program, Midwest High-Speed Rail and KRM as some examples.

The Lesson of Europe:

Americans tend to see Europe in city centers, where transit and intercity rail flourish. Let's take a peek at the big picture. Here's what we see in Europe:

- Population is stagnant or declining. In 2050, population will have returned to 1950 levels, while U.S. population will triple from 1950 levels.
- Fuel prices are very high.
- Toll roads are becoming commonplace.
- There is a long history of tight land use controls.
- There has been major public investment in urban transit and passenger rail
- Limits on urban parking are commonplace.

Nevertheless, contrary to what you might expect, auto usage growth continues to outpace that of passenger rail and transit. Far and away, the fastest growing travel mode in Europe is air service. Likewise, the growth in trucking dwarfs that of freight rail.

The U.S. Experience:

After New York, the only metro area with a transit share above 10% is Chicago, at about 11%. Denver is implementing a major transit system. Its transit modal share today is about 3%; their long-range plan calls for about 4%.

Even in Portland, their current share is about 4%, and their long-range plan projects 5-7%.

The SE Wisconsin Long-Range Transportation Plan:

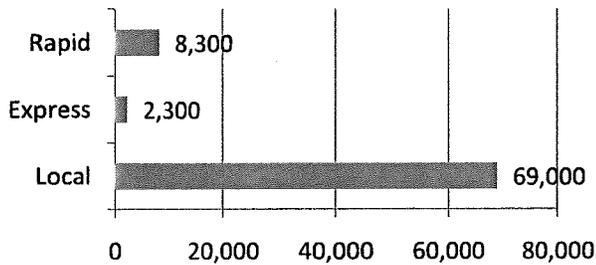
This chart on the following page documents the modal shift impacts of full implementation of the SE WI Regional Transportation Plan, 2035. Let me explain what it reveals.

SEWRPC 2035 Regional Transportation Plan

Base Year 2001

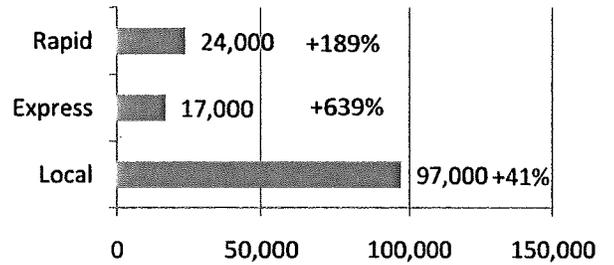
Plan Year 2035

Avg. Weekday Transit Miles



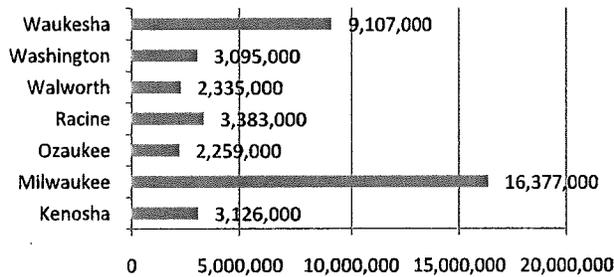
Total Weekday Miles: 79,600

Avg. Weekday Transit Miles

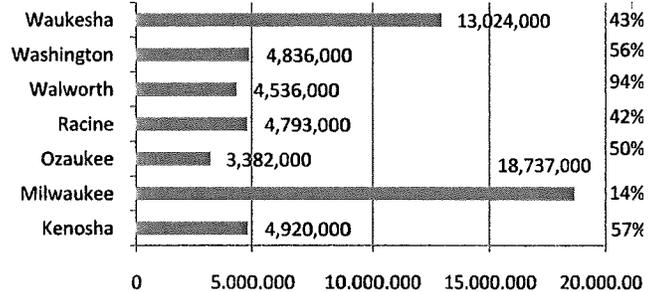


Total Weekday Miles: 138,000 (+73%)

Vehicle Miles Traveled by County

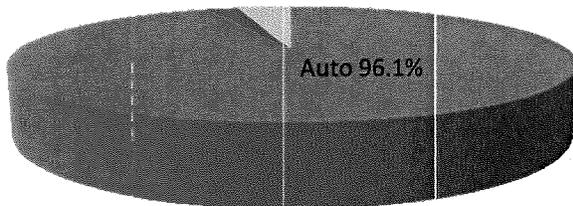


Vehicle Miles Traveled by County



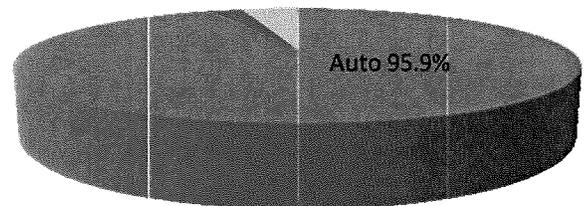
Person Miles of Travel

Transit 1.6% School Bus 2.3%



Person Miles of Travel

Transit 1.7% School Bus 2.4%



Conclusion:

The point I am trying to make is emphatically NOT that alternatives to driving are of limited value. Quite the contrary. For example:

- We believe that fixed transit anchors urban redevelopment, both commercial and residential.
- Transit provides mobility and access to those who cannot afford to drive, bring them into the mainstream economy, and provides travel choices to those who choose not to drive.
- High-speed rail is an economic development investment that will eventually connect Wisconsin's two largest cities and research centers with each other and the midwest's economic engines, Minneapolis and Chicago.

The greenhouse gas impacts of these investments will, however, be minimal, because auto and truck travel will also grow with the economic growth, we are all working to achieve. Any future modal shifts will be slow and small, and their greenhouse gas impacts ultimately dwarfed by the technology of fuels and engines.

When the Clean Air Act Amendments of 1991 were enacted, EPA and Congress believed that VMT growth would overwhelm technology ; shifting people out of their cars would be the only way to achieve ozone standards. Twenty years later, despite VMT growth, Wisconsin's fleet is over 90% cleaner, or on track to become so in the next few years.

We do not need to sacrifice mobility to reduce greenhouse gases. There is no single modal answer to meeting travel needs. All modes must be used to their full potential, where cost-effective. And each mode must operate as environmentally and economically as possible. And we don't need more and more detailed plans to tell us that.

Major Provisions in SB-450 that WTBA Opposes:

I. Carbon Audited Transportation Investments:

WTBA General Position:

WTBA opposes these initiatives in their entirety for numerous reasons, which are detailed below. They should be removed from the bill.

Expanded transit will not be achieved with even more detailed long-term plans, impossible to quantify planning projections and arguments over the relative carbon content of alternative transportation investments. WTBA believes that we need to move beyond the contentiousness of 30 years of arguments between modes, and focus on advancing appropriate highway and transit investment priorities through the state and federal budget processes.

“Never-ending” planning will not produce funded, shovel-ready projects.

We believe that the clear goals of this provision is to force a numeric analysis that pre-selects a transit solution for greenhouse gas emissions reasons, irrespective of any other transportation benefits and despite the de minimis impact of modal shift.

A. Environmental Review of Transportation Projects:

WTBA opposes this new state requirement for several key reasons:

- This provision requires a detailed life cycle analysis of every transportation improvement project in any environmental documents. That alone would be an enormous, very expensive staff-intensive task.
- The task is inappropriate and impossible for an EA (Environmental Assessment) or an EIS (Environmental Impact Statement), which are exploring options at a level that is not detailed enough to determine actual materials or construction methods. These details are worked out in final design, **AFTER** the Final Environmental Impact Statement (FEIS) is approved and a Record of Decision (ROD) is issued by FHWA. In the case of an Environmental Assessment (EA), FHWA must issue a Finding of No Significant Impact (FONSI) is issued, **BEFORE** final design can commence.
- Project materials are determined in final design; project construction methods are determined by the Contractor after the project is awarded. Example: the location and fuel costs of a borrow site are indeterminable at the EIS stage.

- Total life cycle GHG impacts are indeterminable, due to continuing, unpredictable changes in materials and construction technology. Construction materials evolve continuously. The construction project of 2025 is likely to look completely different from those built this year.
- The EIS process used in Wisconsin is determined by federal law (NEPA), subsequent Congressional requirements, and case law history. The Legislature would be wise to avoid imposing new state requirements for this process, which may be inconsistent or counterproductive.
- The bill requires DOT to develop rules for this new process. There are no **STATE** rules for an EIS or EA. WisDOT uses the highly-detailed federal process on all projects, regardless of whether the project is ultimately state or federally funded, which is indeterminate at the EIS/EA stage.
 - In any case, the requirement would be extremely costly to comply with, by requiring additional staff time both in the central office and the regions and/ or more use of consultants, and further delay project development in a very significant way. This is the exact opposite of the intent of federal transportation leadership to streamline the environmental process.
- The provision requires DOT in conjunction with DNR to appoint a council to determine the factors to be used in meeting this new requirement. This is very inappropriate: public members can discuss policy goals, but the development of a detailed methodology will require highly skilled staff efforts. Avoiding any bias in this Council may also be a real problem, given all the stakeholders that would want to be involved.
- A key problem is the determination of transportation use impacts from a proposed project. This is really a requirement for DOT to project any land use changes and induced travel, or negative impact on transit use due to lower density development. This is an appropriate topic for an EIS, and is being done. However, it is always imprecise and controversial, and already the topic of many lawsuits, for example, STH 164; there is no consensus methodology on how to make these projections. In reality, WisDOT and MPO's have no authority over land use, which is a local decision in Wisconsin. The long-term location and type of jobs cannot be projected over any long period of time with the kind of accuracy that would be required to produce a defined GHG impact from the project, and to monetize those impacts. It would also be necessary to quantify the job development benefits of improved mobility in the corridor over a long period of time, another task that is impossible to do with any precision.

- It is highly inappropriate for state and local transportation agencies to become the determining agencies for local land use decisions. Both WisDOT and MPO's develop their long-term plans and short-term programs in the context of locally adopted land use plans, and support those planning efforts. Is Wisconsin really prepared for state land use decision-making? That is where this provision leads to.
- **A final and very serious concern is the virtual guarantee of far more highway project lawsuits. Any time that a potential litigant can make the argument in court that the Department failed to adequately consider the impact of any element of these environmental documents, court standing will be assured. Given that the requirements include elements that are impossible to quantify or highly controversial in their interpretation, this will provide a quick path to an injunction against virtually any project. This is exactly what happened in the Highway 12 corridor here in Dane County: competing visions of the land use impacts of the project.**

B. DOT's 2030 Plan:

WTBA Position:

This provision requires DOT to revise its 2030 Plan and any other long-range modal plan to consider GHG emissions and energy use in identifying or prioritizing or assessing transportation facility or service needs.

- WTBA opposes this provision primarily because the 2030 Plan has been completed under federal requirements. There is no state statute governing this or any other long-term plan, since these plans are policy-oriented, and lack project commitments. Making an exemption mandating only one plan element will immediately trigger demands to incorporate other elements under state law. WTBA would have several suggestions. If there is only one criteria, the implication is that this is the sole criteria: what about mobility, safety and economic development. We also note that there is no Legislative role in approving the plan, nor should there be, given the detailed federal requirements that DOT must follow.
 - After all, what trumps: a DOT plan that lasts as long as the Administration under which it is written; or the actions of the Governor and the Legislature on investment priorities.

- WTBA also opposes this provision as infeasible. The data to project GHG impacts of investment choices over 30-years is pure hypothesis. What will propel cars, trains, and planes in 2020? Or 2030? What if we had a highly detailed plan for 2000 -2020. We did; I was in charge of it, and I know all too well that no one remembers it.
- In short, the GHG impact of different modal priorities is vastly overassumed, and will be dwarfed by future changes in engine and fuel technology.

II. **GHG Emission Reduction Goals:**

WTBA Position:

This provision requires DOT, in conjunction with DNR, to establish statewide goals for transportation emissions.

- WTBA vigorously opposes this for precisely one reason: the only potentially significant output that DOT can even influence is the choice of program investments. Twenty years of federally required conformity requirements have repeatedly shown that the choice of highway and/or transit projects on a Wisconsin scale has only a minimal impact on emissions. As emissions decline from technology, that impact gets smaller. The belief that a highway and/or transit focus will have a major impact on emissions is a myth.
- ***The major factors in driving transportation emissions are:***
 - ***The level and location of economic activity dictates trip making;***
 - ***The demand for freight services and other business trips;***
 - ***The price of fuel;***
 - ***The level of disposable income;***
 - ***Federal fuel efficiency and emissions standards;***
 - ***The emerging and rapidly changing technology of engine and fuel choices;***
 - ***Numerous marketplace factors;***
 - ***Where people live and want to go. It is critical to remember that commuting represents only 20% of trip-making. Most transit trips carry commuters;***

DOT can set a goal, but it can do remarkably little to make it happen. DOT has no control and very little impact on any of the factors listed above.

Therefore, DOT cannot be held accountable to set and achieve a greenhouse gas emissions goal.

DOT would be blamed for setting a goal too low, and blamed for failure to achieve a higher one. This is bad government policy.

- The provision also requires MPO's to establish goals that are consistent with DOT's statewide goals.

WTBA opposes this provision for two important reasons:

- MPO's are a creature of federal law, not state law. MPO's can only have one master. Subjecting MPO's to state statutes is a really radical proposal, that would likely be strongly opposed by MPO's and the communities they represent.
- DOT incorporates MPO plans in their statewide plan, as required by federal law. This proposal would put DOT in charge of reviewing and approving MPO plans, which is not legal.

- WTBA also opposes a closely related provision requiring Reports and Assessments.

This provision requires MPO's to report to DOT on March 1, 2013 and every 4 years thereafter their GHG emissions strategies in their plans and programs; their status; and progress in achieving its goals. DOT would then have to evaluate progress in reaching their goals, incorporating MPO reports.

WTBA opposes this provision as written:

- Suppose an MPO recommends a major transit project and includes it in its long-range plan. But the Legislature/Congress/local agencies choose not to support it or fund it. How can the MPO or DOT be held accountable?

III. Adoption of California Emissions Standards

WTBA General Position:

WTBA opposes Wisconsin's adoption of any rule developed through another state's rule making process. By California law, no Wisconsin individual, organization or company had any input to these rules. Under federal law, Wisconsin has only three choices with regard to state regulation

of on and off-road vehicles: (1) adopt the California rule ***in its entirety without change***; (2) implement relevant federal rules if any exist; or (3) take no action.

This provision was included in the Clean Air Act Amendments of 1991, precisely to allow California to develop additional regulations given their unique air quality situation: the only "Extreme" non-attainment areas for Ozone in the nation.

Wisconsin is not California. Most Californians live in very large cities near the Pacific Coast. They face density and traffic congestion levels, in addition to unique weather conditions, unheard of in Wisconsin. A California emissions solution is a vast overkill for the people of Wisconsin.

WTBA Position on Mandated DNR Studies Re. Adopting California Standards for other Motor Vehicles:

- WTBA is extremely opposed to adoption of California off-road standards, or any study requiring an evaluation of such an initiative. These California standards have the very real potential to put as much as half of Wisconsin's construction industry out-of-business, based on calculated impacts in California. Contractors today are very financially stressed. They do not have the resources for large scale retrofits of all existing equipment or their replacement over a short period of time. Such an initiative would also make existing older Wisconsin equipment worthless (it can't be sold), in effect destroying the primary capital asset of the construction company, which is used to secure bonding.
- From a long-term global warming perspective, the construction industry will always purchase the most environmentally responsible equipment, over time, when the marketplace provides the work to justify the capital investment. Only federally mandated Tier IV equipment can be sold no later after 2012; it eliminates nearly all VOC's, NOx, and PM, while improving fuel efficiency. We will get to the same place as if California standards were imposed, but over a time period that is affordable, and not confiscatory.

IV. Low Carbon Fuel Standard:

WTBA Position:

WTBA opposes this provision for the following reasons:

- Wisconsin is in no position to forego the use of Canadian oil for transportation fuels, when the gasoline refined on the east and west coasts is cleaner due to the proximity of supply. This would add transportation costs in Wisconsin our competitors do not face. Distance to ports for exports is already a competitive issue. Regardless of increased fuel efficiency or the availability of alternative fuels, Wisconsin must continue to depend on ready sources of petroleum. Getting that from a highly volatile Middle East is not a wise choice.
- If it is not exportable to the Midwest, Canadian crude will still be used, by exporting it to the Pacific Coast and to China. This provision would have no impact on global greenhouse gas emissions.
- These provisions seem guaranteed to increase the price at the pump very substantially, to as level that would shake Wisconsin's economy and the wallets of its citizens.

Provisions in SB-450 that WTBA Supports with Modifications

I. Engine Idle Reduction:

WTBA Position:

WTBA strongly recommends a very effective alternative developed over a number of months by the Wisconsin Clean Diesel Coalition. Every member of this Committee should have received a detailed letter asking that you substitute this proposal in its entirety for the poorly crafted, unworkable one in SB-450. The letter described the provisions in a compelling way. This proposal would provide uniformity, protect the safety of construction workers, and assure that trucks and construction equipment can idle in severe weather conditions.

This concept draft has been endorsed by the Boards of Directors of the Wisconsin Transportation Builders Association (WTBA), the Associated General Contractors of Wisconsin (AGC-WI), and the Wisconsin Motor Carriers Association (WMCA), the principal organizations that would be subject to these regulations.

Again, I really do want emphasize that we took this initiative in environmental responsibility, and are asking for these regulations to be enacted. How often does that happen in this building?

Unlike in SB-450, this provision would apply to both on-road and off-road diesel trucks and equipment.

This is a High Priority for WTBA.

II. Planning Grants for Compact Development:

This provision amends DOA comprehensive planning statutes, to require specific information on “traditional neighborhood developments” and evaluate the potential impacts of reduced travel, energy use and GHG emissions.

WTBA Position:

WTBA recommends instead that a new series of planning grants be provided on a competitive basis to municipalities that want to go forward with traditional neighborhood development that will minimize need for vehicular traffic. We suggest Phase I grants to allow municipalities to determine what they want to do, and Phase II grants to provide implementation resources.

III. **Model Parking Ordinance:**

This provision requires the UW-Extension to develop a model market-pricing ordinance, both for on-street parking and preferred parking for relatively low GHG emissions vehicles.

WTBA Position:

While WTBA supports the intent of this effort, we would add the following constructive suggestions:

- There need to be several ordinances for municipalities to choose among. Each urban center has its unique size, density, business location and health/fragility concerns, and potential for positive and negative outcomes.
- A major focus needs to be off-site lots and parking structures. This is both the opportunity and the challenge. (Example: East Towne vs. Downtown)
- The use of electronics needs to be fully explored for on-site parking.
- Preferential parking is a complex issue. A real example is whether an E-85 flex fuel vehicle should get preferential parking, even though the owner might choose not to use E-85 fuel.

Other Provisions in SB-450 which WTBA Opposes

I. Development of Planning Methods and Principles:

This provision requires DOT, in consultation with a number of state agencies, the UW, public institutions, and MPO's to study an extensive list of alternatives that encourage modal shift, rather than only fuel and vehicle technology to reduce GHG emissions.

WTBA Position:

- WTBA opposes this provision and asks the obvious question: good planning as it is practiced today in Wisconsin has and will continue to look at these options extensively in their planning processes. Where is the planning problem that needs to be fixed?

The issue is, again, modal shift. We know what it is; we know how and where it can work, and we know the implementation challenges. The literature is rich and growing.

It is hard to imagine what else can be done at a scale that matters through more and more planning. The issues are governance, funding, and what people will choose to use and support. Another issue is that land use is a LOCAL decision in Wisconsin. Planners know the value of sidewalks and bike lanes; the issue is local choice.

Once again, this seems to be an effort to make planning dictate investments. Is that really what the Legislature wants to happen?

- A second concern is that there is an implication that GHG emissions reductions are the #1 criteria in planning study recommendations. We would argue that other critical factors may be equally or far more important.
- A third concern is that there is an implication that the right study will compare a highway and transit solution in the same area and use GHG analysis to tilt the outcome.

A good example is I-94 South vs. KRM. Studies on both projects concluded that there was no trade-off. KRM served lakeshore communities, added a good mobility option in that corridor and opened the door to significant development around stations, which EPA recently criticized as sprawl/GHG inducing. The I-94 South study proved it did not add mobility to the lakeshore corridor, but added the capacity needed to serve the critical Chicago-Milwaukee Corridor and allow the efficient development assumed in local land use plans to go forward responsibly. That increased development may increase travel, but still have reduced GHG emissions depending on the choice of fuels and engines driving on it. Decision: proceed with both projects.

- State government has very limited and declining staff and fiscal resources. Will this provision add value over other potential uses of planning staff and funds? We do not think so.

- If this provision were included, we would ask that the last two bullets be removed.
 - WTBA is ***unalterably opposed*** to a regulatory scheme that forces contractors to dispose of and repurchase equipment they cannot afford to buy. WisDOT is already working with UW on materials of the future and green highways. They do not need a statutory prod.
 - Any study of public facilities for plug-ins should be undertaken by the PSC.

II. **Financial Assistance to MPO's:**

This provision requires DOT to withhold financial payments to MPO's for failure to make a good faith effort to use the planning tools developed by DOT under this bill.

WTBA Position:

WTBA opposes this provision for these reasons:

- DOT is ***required*** to pass through federal planning and research funds to MPO's. This provision would be illegal. There are no state funds available for MPO's. If MPO's need additional funds, and they do, an increase in federal funds for MPO's should be provided in the budget.

Heretofore, there has been virtually no support in the Legislature for this, despite repeated DOT proposals to do so.

- How can DOT make such a judgment? The Legislature has a strong track record of assuring that local governments are not penalized by DOT. The proposal is not workable and should not be enacted.

III. **PSC Review of Proposed Energy Facilities** (p. 37)

DOT is required to review regulatory barriers to the transport of wind turbine components over the state's highways within 6 months of the bill's effectiveness. It is required to report actions the PSC has taken to remove such barriers and any recommended legislation to "fully" remove such barriers.

WTBA Position:

PSC does not have nor should it have any regulatory role over such regulations. Moving wind turbines cannot have absolute priority over motorist safety, impacts on bridges and pavements, and competing road uses. Could this statute require DOT to close roads to all other traffic at the request of wind turbine carriers?

IV. Growth Accommodation Incentives:

This initiative requires state agencies managing 5 programs to give higher weight to applications that meet one of a list of GHG emissions criteria, such as its location near existing development; is located within a DNR-approved sewer-service area; has blighted properties.

One program is DOT's TEA program, Transportation Economic Assistance.

DOT is required to revise its TEA rules to provide a higher state match for such projects.

WTBA Position:

WTBA objects to this proposal for these reasons:

- It violates the core logic of the program: new or saved jobs, regardless of location. Since its inception, the program has supported job development across the entire state. This initiative would result in few if any grants going to rural communities.
- It would violate the criteria of cost per job saved or created, to assure the program's effectiveness.
- This is ultimately another state land use initiative.



SEN. LEHMAN

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SB 450

My name is Richard Frazier and I reside in Caledonia and represented by the honorable James Lehman of the 21st district.

Thank you for this opportunity to testify on Governor Doyle's Global Warming Task Force fallout. I have looked at SB 450 and am very concerned with the initiatives that it is attempting to legislate.

- Greenhouse Gas Emissions Reduction Goals
- Zero Net Energy Building Goals
- Energy Conservation Goals

As I attempted to wade through this bill, I was astonished at the lost of quality of life, lost of liberty, confiscation of private forest lands through carbon sequestration and the cost to the Wisconsin tax payer that is dictated in SB 450.

As I looked through SB 450 I could not help but realize that Greenhouse Gas is mentioned 146 times and is not defined not even once.

Climate Change is mentioned 38 times and not defined.

As I read this bill, I felt like I was back in Times Square playing three card Monty for the 18th time thinking that I have a to chance to win or that a big green wizard keeps is saying, pay no attention the man behind the curtain.

This bill can not be true, for what it is trying to do, and for what reason?

Being an engineer and knowing that all things boil down to the numbers, so I ran the numbers

SB 450 infers that carbon dioxide needs to be regulated by the State of Wisconsin and that these regulations will lead the world in carbon dioxide reduction.

The question is, can Wisconsin make a difference?

According to the department of Energy, did you know that natural greenhouse gas is made up of 95% water vapor and 3.6% carbon dioxide and other gases.

And further, mankind carbon dioxide emissions equals 0.117% of world wide greenhouse gases. According to the D.O.E.

Speaking in tons of carbon dioxide:

Vegetation produces 440 metric GT of carbon dioxide

The world's oceans produce 330 metric GT of carbon dioxide

Of the 1550 volcanoes in the world, with 500 of them being active there is some 4,000 metric GT of carbon dioxide

In 2006 mankind produced 28 metric GT of carbon dioxide

The US produced 6 metric GT of carbon dioxide

According to the D.O.E., in 2007 Wisconsin produced 0.104 metric GT of carbon dioxide

Of the estimated world wide carbon dioxide production of natural and mankind, there is 4,798 metric GT with 0.104 metric GT being contributed by Wisconsin which is 0.002167% of world wide carbon dioxide quantities.

According to the governors clean green Wisconsin plan, this green plan will cost Wisconsin billions of dollars to deviate 0.002167% of world wide carbon dioxide quantities.

This bill can not be true, it's a bate n switch, it will not make a difference when it comes to climate change or effecting greenhouse gases.

Or is there a more sinister reason to propose SB 450?

Even if Wisconsin eliminated all the carbon dioxide which it produces it would only reduce the world wide carbon dioxide quantity by 0.002167%.

It would be like taking a bucket of water out of Lake Mendota and thinking that you made a difference.

Thank you.